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Attorney's Docket No. 038151/277586
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PATENT

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

Mail Stop Provisional Patent Application
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 C.F.R. 1.53(c).

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TITLE OF THE INVENTION *(500 characters maximum)*

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ENCLOSED APPLICATION PARTS *(check all that apply)*

- ☒ Specification (Number of Pages 6)
- ☒ Drawing(s) (Number of Sheets 3)
- ☐ Application Data Sheet. See 37 CFR 1.76
- ☐ CD(s), Number _____
- ☐ Other (specify)

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☐ No.

☒ Yes, the name of the U.S. Government agency and the Government contract number are: U.S. Department of Homeland Security, Contract No. 233-03-0081

Respectfully submitted,

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Janet F. Sherrill

MOBILE HOSPITAL

FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[001] The research underlying this invention was supported in part with funds from United States Department of Homeland Security Grant No. 233-03-0081. The United States Government may have an interest in the subject matter of this invention.

BACKGROUND OF THE INVENTION

Field of the Invention

[002] There is disclosed a portable healthcare facility built onto a tractor-trailer infrastructure, that is deployed to a site to assist in patient triage and treatment.

Description of Related Art

[003] The military has used evacuated buildings, tents and the like, to perform operative intervention, critical care monitoring, and general medical/surgical care. Tents systems require set-up time and effort, and are not conductive to a clean environment. Also, inclement weather and extreme temperatures may also cause further complications.

BRIEF SUMMARY OF THE INVENTION

[004] The mobile hospital of the present invention involves the use of a 50 foot long tractor-trailer that is designed to serve as a patient care facility. In a preferred embodiment, a second trailer serves as a support unit for equipment and supplies. The mobile hospital trailer includes slide outs which expand the area inside the trailer to provide two treatment areas patients. Another portion of the trailer includes a critical care/resuscitation unit. The trailer is completely self-sufficient and is to include generator power, running portable water, biohazardous waste disposal, lighting, heating, air conditioning and HEPA air filtration. Supplies are stored in overhead cabinets in each treatment bay and in fixed cabinets in the resuscitation station. Medical personnel work stations are located to maximize viewing and monitoring of all patients.

[005] The mobile hospital has application in a number of different environments. In the event of terrorist incident involving a weapon of mass destruction, the mobile hospital can be brought to the scene to either ease the burden on the local medical facilities or be used to treat patients on scene if the medical facilities become overwhelmed or destroyed.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S)

[006] Having thus described the invention in general terms, reference will now be made to the accompanying drawings, which are not necessarily drawn to scale, and wherein:

[007] FIG. 1 is a cutaway top view of the mobile hospital of the present invention showing the expanded patient treatment bays and critical care areas;

[008] FIG. 2 is a passenger side view of the mobile hospital taken along line 2-2 of FIG. 1;

[009] FIG. 3 is a driver's side view of the mobile hospital taken along line 3-3 of FIG. 1;

[010] FIG. 4 is an end view of the mobile hospital showing the hospital trailer and the outside awning system; and

[011] FIG. 5 is illustrates the mobile hospital showing the trailer and the slide outs in perspective.

DETAILED DESCRIPTION OF THE INVENTION

[012] The present inventions now will be described more fully hereinafter with reference to the accompanying drawings, in which some, but not all embodiments of the invention are shown. Indeed, these inventions may be embodied in many different forms and should not be construed as limited to the embodiments set forth herein; rather, these embodiments are provided so that this disclosure will satisfy applicable legal requirements. Like numbers refer to like elements throughout.

[013] As shown in FIG. 1, the mobile hospital comprises a fifty foot tractor-trailer **100** that is designed to serve as a patient care facility. The mobile hospital trailer **100** is designed with slide outs **110, 120** that expand the square footage inside the trailer. This expanded space is used to configure the two treatment areas for patients. The passenger

side slide out **110** and the driver's side slide out **120** each contain six patient treatment bays **140, 150**. With slide outs **110, 120** fully deployed the treatment area is approximately 700 square feet. This area is intended for more serious ill or injured victims who require more definitive care or monitoring. A second slide out area **130**, once fully deployed, provides approximates 144 square feet of critical care/major resuscitation.

[014] The mobile hospital trailer **100** is completely self sufficient and includes complete generator power, running potable water, biohazard waste disposal, lighting, heating, air conditioning and HEPA air filtration. As shown in FIG. 2 and FIG. 3, supplies are stored in overhead cabinets **160** in each treatment bay and in fixed cabinets in the resuscitation station. Monitoring and resuscitation equipment **170** is fixed mounted in the appropriate treatment areas. Fixed mounted hardware and supplies are supplemented with equipment stored on rolling carts. The layouts are designed to minimize the time between setup and treatment of casualties. Oxygen, air suction, and electricity are plumbed to all patient treatment bays. Individual patient treatment bays may be segregated for privacy by dividing curtains. Medical personnel workstations **180** are located to maximize viewing and monitoring of all patients. Telephone and data connections are located in the medical personnel workstation. Computers are connected via a server mounted onboard the trailer. Data communications with a trauma center or other healthcare facility and local EMS or emergency operations centers are conducted via a high-speed satellite system. Telemedicine capabilities are also available using the satellite system.

[015] A total of 14 patient care areas or cubicles will be available given the space inside the three slide outs of the trailer. Eleven beds will be primary care beds in the main trailer, two beds will be identified as operative intervention/critical care/special procedure beds, and four will be critical care beds. Each care area will be separated by curtain partitions between beds and be open to the main walk-through region to facilitate patient observation and monitoring. All beds will be of the "medical office" type, seated firmly on the floor and including a thick mattress. These beds also have storage drawers located under the mattress on the sides. Paper rolls are located at the head of each bed to be used as sheets. The utility of this is important for this can be changed quickly between

patients, it is easily disposed of, and it negates the requirement for linen. Operating room tables will be used in the operative area. Oxygen and suction ports with all piping for such will be located behind the interior wall, in the space between the hospital wall and trailer exterior wall. Diagnostic instruments including an ophthalmoscope, otoscope with speculums and dispenser, sphygnomonometer, and thermometer with probe covers will be located between cubicles to service two individual patient care areas. Cardiac monitoring capability is permanently mounted in the critical care areas and available at non-critical care cubicles using portable cardiac monitor/defibrillators. Having portable monitors facilitates more flexibility and allows each cubicle to be potentially monitored.

[016] Additional hardware at each patient care area includes cabinetry for storage and intravenous line attachments for fluid resuscitation and hydration capability. Specialty care rolling carts are included in the cache. Carts will include supplies for airway support (laryngoscopes, endotracheal tubes, and alternative airway adjuncts), intravenous lines (fluids, tubing, and start kits), and for minor laceration and burn care. Central workstations **180** are located between the two slide outs for charting and other paperwork duties. All other care areas are stocked with standard emergency care and diagnostic supplies. Additional diagnostic equipment will include a portable ultrasound machine and x-ray unit. These two machines will be entirely mobile throughout all areas of the facility. The x-ray apparatus only requires a minimal radiation supply so that exposure is considered minimal.

[017] As shown in FIG. 4 and FIG. 5, the mobile hospital's capability extends outside the trailer. Even with the deployment of slides, there is a limit to the number of stretcher patients that can be accommodated inside. Through the use of a marquee system on the roof of the trailer, an aluminum joist and column frame **210** can be anchored then erected in horseshoe fashion from the nose of the trailer to approximately thirty feet beyond the rear entrance to the trailer to form an outside awning system **200**. The frame **210** is covered with a canvas tent that effectively encloses an area approximately 80 feet long and 70 feet wide. Canvas walls can be lowered that seal off the area from the outside. The purpose of this awning system is to provide a more controlled environment for non-emergent patients. Fluorescent light boxes are suspended from the awning framework and are connected via pre-wired electrical connections in the awning. This will provide

sufficient illumination for all minor patient care activities. Heating for winter operations are provided by electric heaters that are suspended from awning framework and distributed around the perimeter of the awning.

[018] Cooling for warm weather operations is accomplished through the use of electric fans that circulate the air under the awning system. All air coming in to this portion will also be HEPA filtered to 0.3 microns. Portable litters are distributed throughout the floor space beneath the awning for medical monitoring and basic treatment. Appropriate staffing will be assigned to this area. Should a patient deteriorate, the patient will be moved to the more definitive treatment area inside the hospital trailer.

[019] When the awning structure is deployed, a complete patient care working environment will be available. A nursing station is set up directly adjacent to the trailer where medical equipment and supplies will be housed in storage compartments under the trailer. The remainder of the outside structure is divided into two sections; one for patients categorized as a higher priority and one for lesser priority patients. Litters and litter stands are available for those requiring such. Similar to the inside portion of the facility, specialty care rolling carts will be available for the outside patient care area. Carts will include supplies for airway support, intravenous lines, and for minor laceration and burn care.

[020] In a preferred embodiment, a second trailer (not shown) serves as the support unit for equipment and supplies. The support unit incorporates a "two story" design that allows for maximum efficient use of storage. Larger/bulkier equipment is stored over head while smaller equipment, rolling carts, and replacement supply inventory is located on the lower level. Movement between levels is accomplished via lift gate on the rear of the trailer.

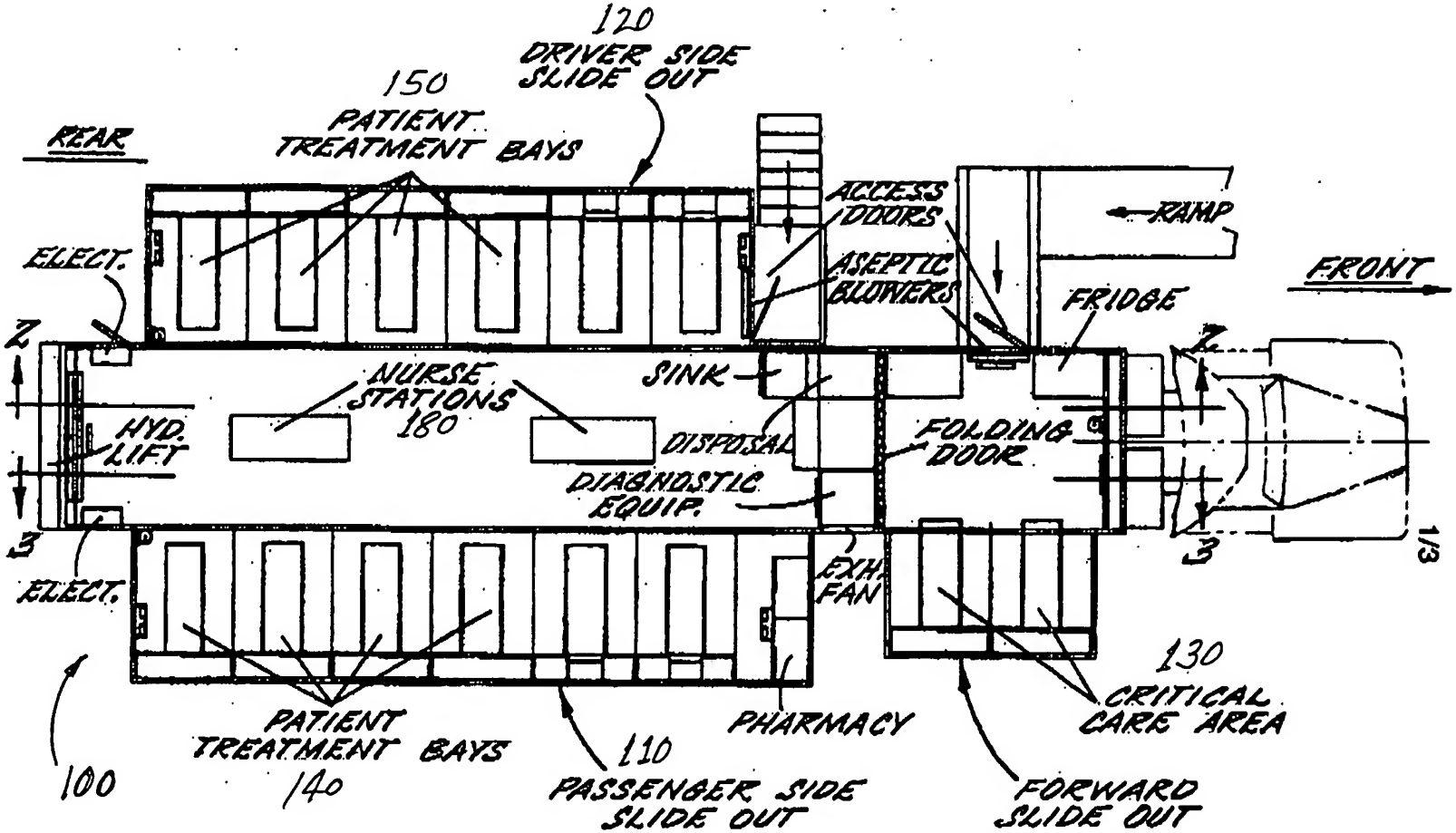
[021] With the capability for critical care resuscitation, the mobile hospital can handle many of the emergency medical interventions to be rendered at a local hospital emergency department. Patients who were decontaminated can be brought into this mobile facility and stabilized then transferred to a hospital or treated and released. The mobile hospital plays a key role on scene should there be a need for long distance transfer of patients beyond the region or via the National Disaster Medical system out of state.

[022] The mobile hospital has applications in the event of a biological terrorist incident. This system can be used to provide medical support for a mega-shelter established at one of the major public facilities (i.e., area, convention center, etc...) identified as shelter or quarantine for exposed or contagious victims. The mobile hospital can also be deployed to and airport or other reception location. Patients being off loaded from a limitary aircraft would have immediate access to a critical care treatment facility in the event their condition deteriorated during flight. Stabilization can be accomplished in advance of ground transfer to a regional receiving hospital.

[023] The mobile hospital has other applications beyond terrorism to include any natural or man-made disaster that involves mass casualties that over whelm the capability of the local facilities to handle.

[024] Many modifications and other embodiments of the inventions set forth herein will come to mind to one skilled in the art to which these inventions pertain having the benefit of the teachings presented in the foregoing descriptions and the associated drawings. Therefore, it is to be understood that the inventions are not to be limited to the specific embodiments disclosed and that modifications and other embodiments are intended to be included within the scope of the appended claims. Although specific terms are employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation.

CLT01/4646403v1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DRIVER SIDE SLIDE OUT
150
PATIENT TREATMENT BAYS
REAR
ELECT.
ACCESS DOORS
ASEPTIC BLOWERS
RAMP
FRONT
FRIDGE
NURSE STATIONS
180
SINK
HYD. LIFT
DISPOSAL
FOLDING DOOR
DIAGNOSTIC EQUIP.
EXH. FAN
ELECT.
130
CRITICAL CARE AREA
PATIENT TREATMENT BAYS
140
PHARMACY
110
PASSENGER SIDE SLIDE OUT
FORWARD SLIDE OUT
100
1/3

Fig. 1.

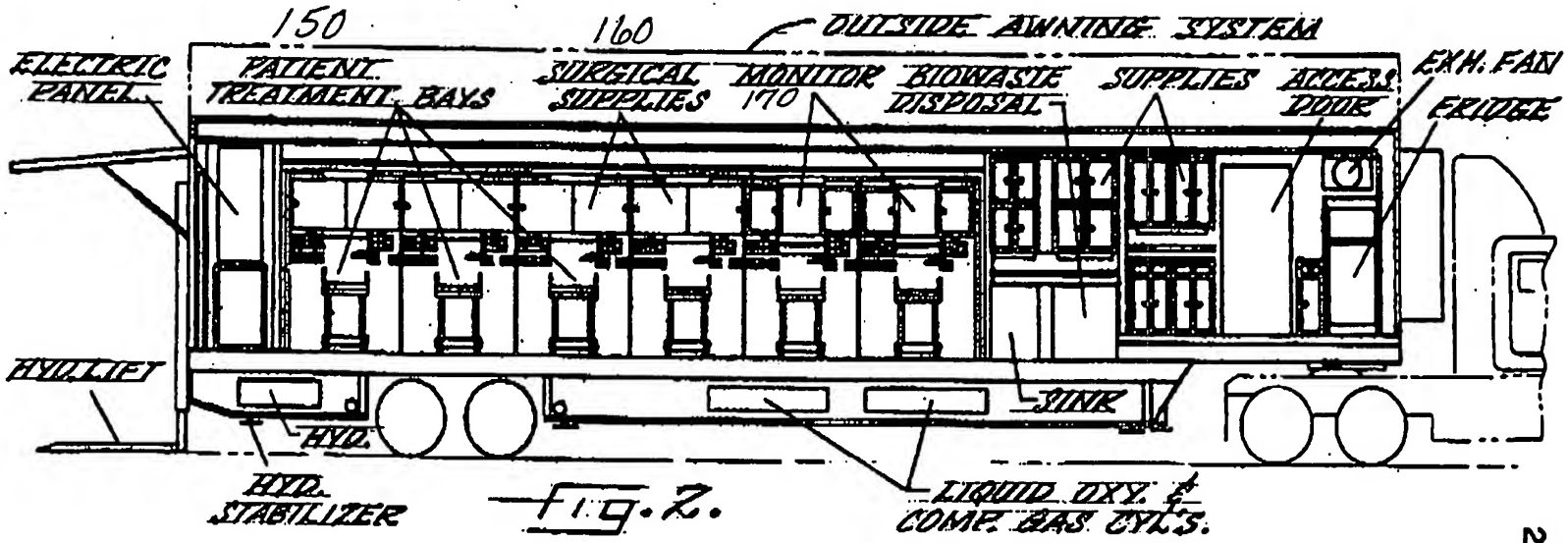
150
160
OUTSIDE AWNING SYSTEM
ELECTRIC PANEL
PATIENT TREATMENT BAYS
SURGICAL SUPPLIES
MONITOR 170
BIOWASTE DISPOSAL
SUPPLIES
ACCESS DOOR
EXH. FAN
FRIDGE
HYD. LIFT
HYD.
SINK
HYD. STABILIZER
LIQUID OXY. & COMP. GAS CYL'S.

Fig. 2.

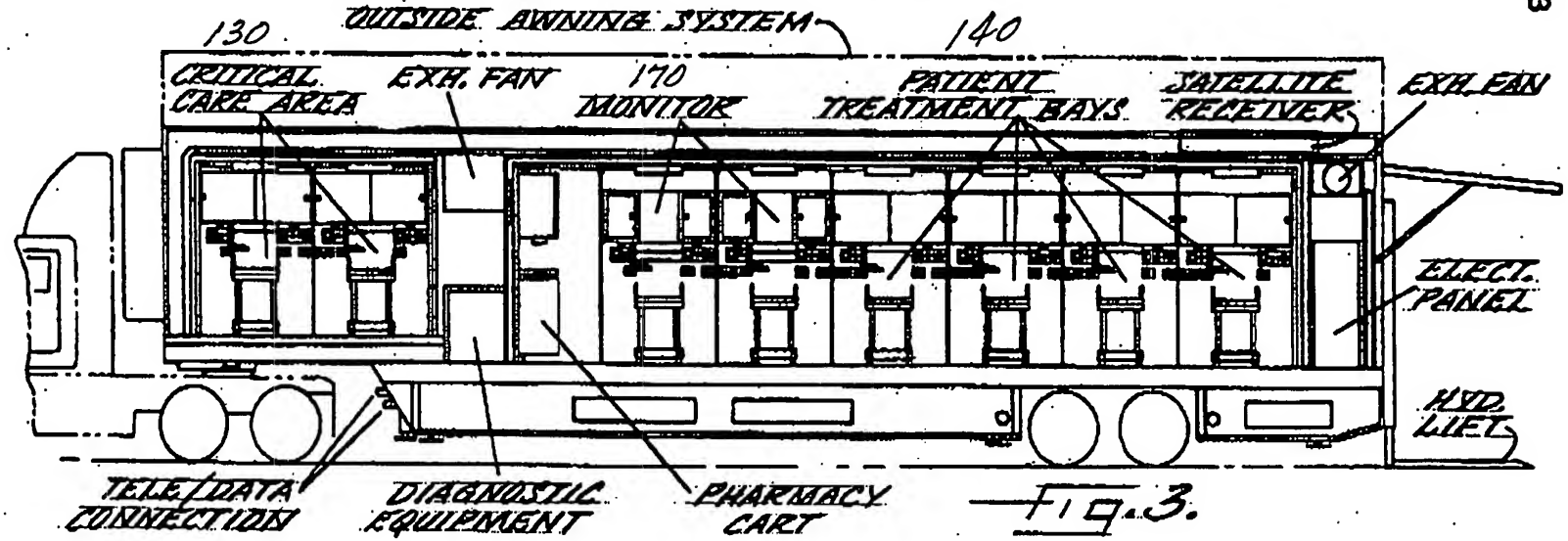
130
OUTSIDE AWNING SYSTEM
140
CRITICAL CARE AREA
EXH. FAN
170 MONITOR
PATIENT TREATMENT BAYS
SATELLITE RECEIVER
EXH. FAN
ELECT. PANEL
HYD. LIFT
TELE/DATA CONNECTION
DIAGNOSTIC EQUIPMENT
PHARMACY CART

Fig. 3.

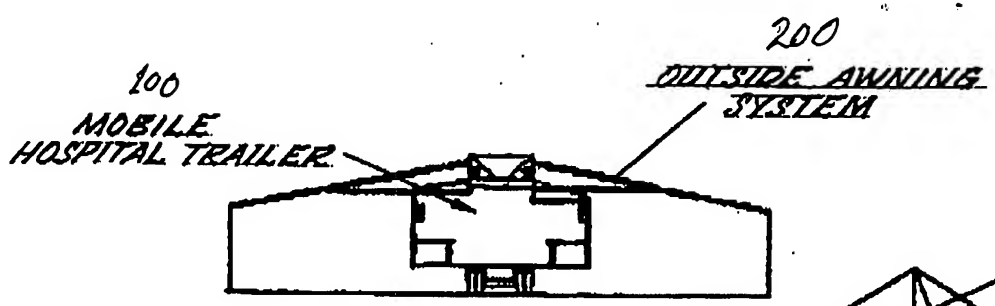
100
MOBILE
HOSPITAL TRAILER
200
OUTSIDE AWNING
SYSTEM

Fig. 4.

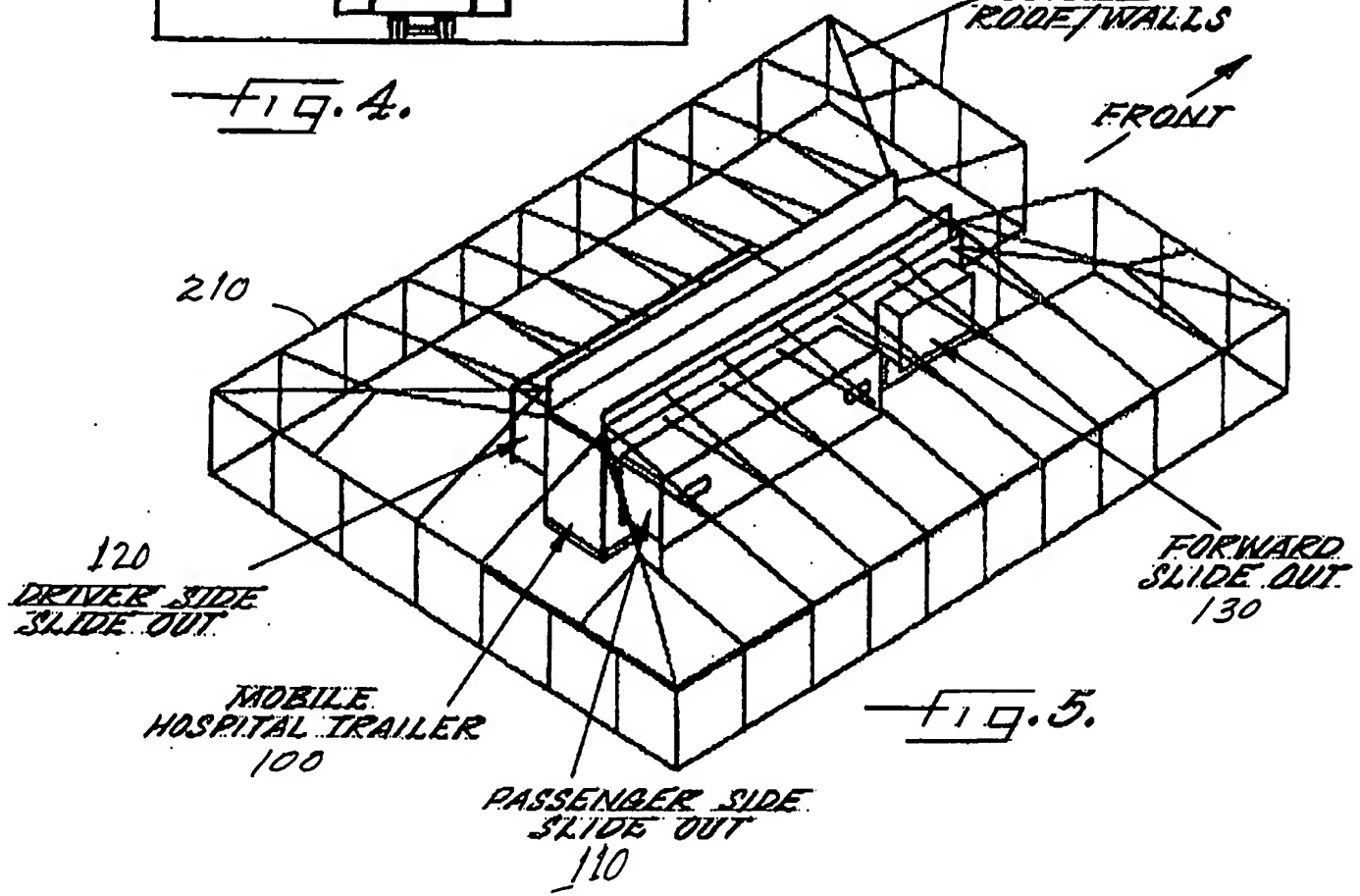
OUTSIDE
ROOF/WALLS
FRONT
210
120
DRIVER SIDE
SLIDE OUT
FORWARD
SLIDE OUT
130
MOBILE
HOSPITAL TRAILER
100
PASSENGER SIDE
SLIDE OUT
110

Fig. 5.